

Course Syllabus  
**Public Affairs 974**  
Spring, 2011  
“Science Policy for the 21<sup>st</sup> Century”  
Thursdays, 1:20 – 3:15 PM  
6228 Social Science

Professor: John Wiley  
Office: 3120A WID Building  
Email: [jdwiley@wid.wisc.edu](mailto:jdwiley@wid.wisc.edu)  
Phone: 338-3856

Assistant: Cherie Krenke  
Office: 3120C WID Building  
Email: [krenke@wid.wisc.edu](mailto:krenke@wid.wisc.edu)  
Phone: 316-4339

Text: Homer A. Neal, Tobin L. Smith, and Jennifer B. McCormick. (2008). *Beyond Sputnik: U.S. Science Policy for the 21<sup>st</sup> Century*. Ann Arbor Michigan. University of Michigan Press.

Other useful resources (all available online):

National Academy of Sciences publications  
National Academy of Engineering Publications  
Institute of Medicine Publications  
National Research Council Publications  
National Science Foundation publications  
The Chronicle of Higher Education (weekly)  
Inside Higher Education (daily via email)

### Course Expectations

Attendance: Except for family, health, or other emergencies, attendance and active participation in discussions are mandatory. This is a seminar course, so you will learn mostly from the classroom discussions and the required paper you will prepare.

Paper: The primary assignment for this course is a paper on a relevant topic of your choice, including an oral presentation on that topic toward the end of the course. As science policy affects all aspects of civic operations and activities, the range of possible relevant topics is extraordinarily broad. You need to make an early appointment, though, to discuss your topic choice and have it approved.

The length of the paper is less important than the quality of the work, but something in the range of 15-20 pages is a good target for a well-chosen and suitably limited topic. The paper must constitute original work (neither recycled from another course, nor paraphrased from other source materials).

Needless to say, you are expected to give appropriate credit to any authors or references you rely on. You may use any citation format appropriate to your discipline. If you need assistance or reminders regarding proper citations, quotations, plagiarism, or other related topics, help is available online from the UW Library website. Collaborative work and co-authored papers are acceptable as long as you take care to describe each author's contributions, as well as those concepts or areas that resulted from genuine collaboration that would not have occurred had you worked independently.

A near-final draft of the paper is due on Friday, April 8. The final paper is due on the last class day, Thursday, May 5.

Oral presentation to the class is an important component of your assignment. This will probably take 3-4 class periods, so that is reflected in the schedule. These presentations should be timed for approximately 15 minutes, followed by perhaps 15 - 20 minutes of Q&A. Note that this is a very difficult amount of time: Fifteen minutes is too long to fill with superficialities, and too short to allow in-depth coverage of a topic you will know better than any of the listeners. Still, 15 minute presentations are common at professional meetings, so it is a time period you will need to learn how to manage.

## Course Schedule

Attached is the schedule of topics by class period

I will spend approximately the first half of each class period summarizing, critiquing, and augmenting the reading material assigned in Neal. The second half of each period will be devoted to class discussion. Please come to class prepared to engage with the issues for that day. In addition, the class will be augmented by expert visitors on relevant topics.

Throughout the course, I expect you to read the current issues of the Chronicle of Higher Education and Inside Higher Education, noting particularly any items having to do with current issues on science policy, or relevant to science policy. In addition, there are frequently articles in the popular press (newspapers, news magazines, television) dealing with controversial science or science policy topics. When you notice any such items, please bring them to class for discussion. These are the true "current issues" that have stimulated the development of this course.

Jan 20 – Course Overview and background discussions

Jan 27 – Chapters 1-2 of Neal.  
Science Policy Defined  
U.S. Science Policy before and after *Sputnik*  
Policy Discussion 1.1, 2.1

Feb 3 – Chapters 3-4 of Neal.  
The Players in Science Policy  
The Process of Making Science Policy  
Policy Discussion 3.2, 4.1

Feb 10 – Chapters 5-6 of Neal.  
Federal Funding for Research: Rationale, Impact, and Trends  
Universities  
Policy Discussion 5.1, 6.1, 6.2.

Feb 17 – Chapters 7-8 of Neal.  
Federal Laboratories  
Industry  
Policy Question 7.1, 8.1, 8.2.

Feb 24 – Chapters 9-10 of Neal.  
The States  
The Public  
Policy Discussion 9.1, 10.1.

Mar 3 – Chapters 11-12 of Neal.  
Science for National Defense  
Big Science  
Policy Discussion 11.1, 11.2.

Mar 10 – Chapters 13-14 of Neal.  
Scientific Infrastructure  
Scientific Ethics and integrity  
Policy Discussion 13.1, 14.1, 14.2

Mar 17            SPRING RECESS; NO CLASS

Mar 24 – Chapters 15-16 of Neal.  
STEM Education  
The S&E Workforce  
Policy Discussion 15.1, 15.2, 16.1, 16.2

Mar 31 – Chapters 17-18 of Neal.  
Globalization and Science Policy  
Science and Homeland Security  
Policy Discussion 17.1,18.1, 18.2.

Apr 7 – Chapters 19-20 of Neal.  
Grand Challenges for Science and Society  
Science, Science Policy, and the Nation's Future  
Policy Discussion 19.1, 20.1, 20.1

[Friday Apr 8 – Near-final draft of paper due by email or 3120A WID]

Apr 14 – Presentations of Papers

Apr 21 – Presentations of papers

Apr 28 – Presentations of papers.

May 5 – Remaining class presentations and course wrapup

## Policy Discussions

- 1.1, p.10 – Who Knows Best: Scientists Or Society?
- 2.1, p.20 – A Conflict Then, A Conflict Now (ongoing tensions in science policy)
- 3.1, p.27 – Do We Need A Department Of Science?
- 3.2, p.42 – Does Congress Need More Technical Support?
- 4.1, p.58 – Funding For Immediate Needs *vs* Long Term Investments
- 5.1, p.78 – The Tricky Business Of Forecasting What Basic Science Will Lead To
- 6.1, p.101 – Should Any Part Of Tuition Pay For University Research?
- 6.2, p.104 – OMB Circular A-21 (Indirect Costs)
- 7.1, p.128 – Who Should Manage The National Laboratories?
- 8.1, p.136 – When Is Government Interference In Industrial R&D Legitimate?
- 8.2, p.148 – Paying Twice? (paying for research and paying more for the product)
- 9.1, p.160 – State Involvement In Stem Cell Research: Too Much Or Too Little?
- 10.1, p.172 – Media Coverage Of Science
- 11.1, p.191 – Defense Research Funding: How Much Is Enough?
- 11.2, p.194 – The DARPA Model: Can It Be Replicated?
- 12.1, p.209 – Big Science *vs* Little Science: What Is The Right Balance?
- 13.1, p.224 – Research Infrastructure: Who Should Pay?
- 14.1, p.234 – Self-Regulation *vs* Government Regulation: Finding the Right Balance
- 14.2, p.236 – Managing Public Perception and Conflicts Of Interest
- 15.1, p.266 – What Should Be Taught As Science And Who Should Decide?
- 15.2, p.269 – How Do We Know Which STEM Programs Are Effective?
- 16.1, p.281 – Intl Comparisons: What is an Engineer, And How Many Are Needed?
- 16.2, p.285 – H-1B Visas: Does Foreign Talent Displace U.S. Citizens?
- 17.1, p.299 – A “Flat World:” Good Or Bad?
- 18.1, p.317 – The Two-Edged Nature of Polio Research
- 18.2, p.322 – Export Controls: Cold War Relic Or Necessary For Security?
- 19.1, p. 338 – The Social Compact: Responsibilities and Federal Funding
- 20.1, p.348 – Science And Religion: Compatible Or Incompatible?
- 20.2, p.355 – Peer Review And Moral Values: Compatible Or Incompatible?